



MUSTARD AGENTS

Agent Information:

Mustard agents are chemical warfare agents in the blister agent grouping. The family includes sulfur mustard, (H), HD, HT; and lewisite, nitrogen mustard, mustard lewisite and phosgene-oxime. Sulfur mustards are yellow to brown oily liquids with a slight garlic or mustard odor. Since mustard agents tend to remain liquid, volatility is low. However, their vapors can reach hazardous levels during warm weather.

Signs and Symptoms:

Signs and symptoms vary, depending on the route and level of exposure. Skin contact with sulfur mustards causes erythema and blisters. Ocular exposure to these agents may cause incapacitating damage to the cornea and conjunctiva. Inhalation damages the respiratory tract epithelium and may cause death. Damage begins in minutes, although effects may not be seen for much longer. (Onset for lewisite is minutes; sulfur mustard is hours to days.)

Signs include skin erythema and blistering, watery, swollen eyes; upper airways sloughing with pulmonary edema; metabolic failure; neutropenia; and sepsis (especially for sulfur mustard). Later symptoms include burning, itching, or red skin; mucosal irritation (prominent tearing, burning and redness of eyes); shortness of breath; nausea; and vomiting.

Route of Exposure:

Inhalation and dermal absorption are primary routes of exposure.

Protective Measures:

People whose skin or clothing is contaminated with sulfur mustard can contaminate rescuers by direct contact or through off-gassing vapor. PPE includes hooded PAPR, biochem suit, gloves, boots, etc.

Lab Samples Requested for Evaluation:

Urine thiodiglycol, tissue biopsy, collection of oily droplets on skin from ambient sources. DPH will coordinate testing with CDC.

Prophylaxis:

Appropriate PPE to avoid secondary contamination.

Treatment:

There is no specific antidote or treatment for mustard poisoning. Supportive care is the first-line treatment. There is an antidote for lewisite poisoning, British Anti-Lewisite (BAL). If given early enough, BAL minimizes some internal damage from lewisite, but it will not help skin, airway or eye damage. Immediate decontamination of both agents is necessary to prevent further tissue damage.

Reporting:

Report suspect cases immediately to Delaware's Division of Public Health, Epidemiology Branch: 1-888-295-5156 (24/7 coverage).

Contact Information:

Delaware's Division of Public Health: 1-888-295-5156. For additional information, view the Centers for Disease Control and Prevention (CDC) website for Emergency Preparedness and Response at www.bt.cdc.gov.